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(12) **United States Design Patent**
Steelman et al.

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(45) **Date of Patent:** **** May 24, 2016**

(54) **INHALATION SPACER**

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(US)

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(US)

(**) Term: **15 Years**

(21) Appl. No.: **29/529,727**

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Related U.S. Application Data

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11, 2013, now Pat. No. Des. 735,316.

(51) **LOC (10) Cl.** **29-02**

(52) **U.S. Cl.**
USPC **D24/110**

(58) **Field of Classification Search**
USPC D24/107, 108, 110, 127, 164
CPC A61M 15/0086; A61M 15/009; A61M
15/0018; A61M 15/0021; A61M 11/00;
A61M 16/20; A61M 15/0088
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,291,688 A 9/1981 Kistler
4,470,412 A * 9/1984 Nowacki A61M 15/0086
128/200.18
4,484,577 A 11/1984 Sackner et al.
4,706,663 A 11/1987 Makiej

D295,321 S * 4/1988 Hallworth D24/110
4,796,614 A 1/1989 Nowacki et al.
4,809,692 A 3/1989 Nowacki et al.
5,012,803 A * 5/1991 Foley A61M 15/0086
128/200.14
5,012,804 A * 5/1991 Foley A61M 15/0086
128/200.14

(Continued)

FOREIGN PATENT DOCUMENTS

GB 2 275 615 A 9/1994
WO WO 02/092146 A2 11/2002

(Continued)

OTHER PUBLICATIONS

“AeroChamber Plus Flow-Vu Anti-Static Valved Holding Chamber,
Mouthpiece, Large Mask” Forest Pharmaceuticals, Inc., RMC 16416
Revision: Jan. 2010 (1 page).

(Continued)

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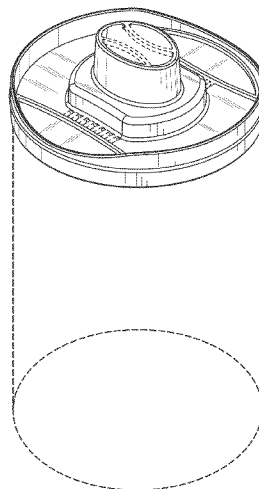
(57) **CLAIM**

The ornamental design for an inhalation spacer, as shown and
described.

DESCRIPTION

FIG. 1 is a front, top perspective view of an inhalation spacer
showing our design;
FIG. 2 is a front view thereof, the rear view being a mirror
image thereof;
FIG. 3 is a left side view thereof, the right side view being a
mirror image of the left side view; and,
FIG. 4 is a top view thereof.
The broken lines in the drawings illustrate portions of the
inhalation spacer which form no part of the claimed design.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

- 5,040,527 A 8/1991 Larson et al.
 5,042,467 A 8/1991 Foley et al.
 5,074,294 A 12/1991 Chiesi
 5,109,840 A 5/1992 Daleiden
 5,150,815 A 9/1992 Saklad
 5,203,323 A 4/1993 Trittle
 D342,993 S * 1/1994 Fathi D24/110
 5,318,016 A * 6/1994 Mecikalski A61M 15/0086
 128/200.14
 5,385,140 A 1/1995 Smith
 5,427,089 A 6/1995 Kraemer
 5,477,849 A 12/1995 Fry
 5,497,765 A 3/1996 Praud et al.
 5,501,214 A 3/1996 Sabo
 5,513,626 A 5/1996 Hamilton
 D373,630 S 9/1996 Berg et al.
 5,571,246 A * 11/1996 Alldredge A61M 15/0086
 128/200.14
 5,645,049 A 7/1997 Foley et al.
 5,724,962 A 3/1998 Vidgren et al.
 5,809,996 A 9/1998 Alldredge
 5,816,240 A 10/1998 Komisaroff
 5,848,588 A * 12/1998 Foley A61M 15/0086
 128/200.14
 D412,979 S 8/1999 Weinstein et al.
 5,988,160 A 11/1999 Foley et al.
 6,026,807 A * 2/2000 Puderbaugh A61M 15/0086
 128/200.14
 6,039,042 A * 3/2000 Sladek A61M 15/0086
 128/200.23
 6,240,917 B1 6/2001 Andrade
 6,293,279 B1 9/2001 Schmidt et al.
 6,345,617 B1 2/2002 Engelbreth et al.
 6,435,176 B1 8/2002 Berg et al.
 6,435,177 B1 8/2002 Schmidt et al.
 6,463,929 B1 10/2002 Scheuch et al.
 6,550,473 B1 4/2003 Sladek
 6,557,549 B2 * 5/2003 Schmidt A61M 15/0086
 128/200.24
 6,595,204 B2 7/2003 Genova et al.
 6,595,206 B2 7/2003 Vito
 6,604,522 B2 8/2003 Arvidsson et al.
 7,107,987 B2 9/2006 Sundaram et al.
 7,360,537 B2 4/2008 Snyder et al.
 7,404,400 B2 7/2008 Lulla et al.
 7,431,175 B2 10/2008 Heilos
 D585,542 S 1/2009 Watson et al.
 7,562,656 B2 * 7/2009 Gallem A61M 15/0086
 128/200.14
 D597,656 S 8/2009 Bird et al.
 7,748,385 B2 7/2010 Lieberman
 8,074,641 B2 12/2011 Gallem et al.
 8,074,642 B2 12/2011 Bruce et al.
 RE43,174 E 2/2012 Schmidt et al.
 8,528,543 B2 9/2013 Barney et al.
 D692,122 S * 10/2013 von Hollen D24/110
 D717,424 S 11/2014 Steelman et al.
 D735,316 S * 7/2015 Steelman D24/110
 2002/0069870 A1 6/2002 Farmer
 2003/0010336 A1 * 1/2003 Vito A61M 15/0086
 128/200.22
 2003/0029447 A1 * 2/2003 Vito A61M 15/0086
 128/200.23
 2003/0205226 A1 * 11/2003 Gallem A61M 15/0086
 128/200.14
 2004/0050869 A1 * 3/2004 Jennings A61M 15/009
 222/183
 2004/0094148 A1 5/2004 Lulla et al.
 2004/0231665 A1 * 11/2004 Lieberman A61M 15/0086
 128/200.14
 2006/0000471 A1 * 1/2006 Klein A61M 15/0088
 128/200.23
 2007/0113841 A1 5/2007 Fuchs
 2007/0289590 A1 12/2007 Kreutzmann et al.

- 2008/0035142 A1 * 2/2008 Lulla A61M 15/0086
 128/203.12
 2008/0210225 A1 9/2008 Geiger
 2009/0007909 A1 1/2009 Carrico
 2009/0013993 A1 1/2009 Bird et al.
 2011/0209700 A1 9/2011 Kreutzmann et al.
 2011/0226242 A1 9/2011 Von Hollen et al.
 2011/0232636 A1 * 9/2011 Von Hollen A61M 15/0086
 128/202.13
 2011/0247624 A1 10/2011 Von Hollen et al.
 2012/0042874 A1 2/2012 Gallem et al.
 2012/0247460 A1 10/2012 Stenzler et al.
 2012/0285236 A1 * 11/2012 Haartsen A61M 11/005
 73/204.11
 2012/0318261 A1 * 12/2012 Newhouse A61M 15/0086
 128/200.23
 2013/0075393 A1 3/2013 Haynie
 2013/0276781 A1 10/2013 Steelman et al.
 2013/0291862 A1 11/2013 Eagle
 2015/0059739 A1 * 3/2015 Aslam A61M 15/009
 128/202.22

FOREIGN PATENT DOCUMENTS

- WO WO 2010/070496 A1 6/2010
 WO WO 2012/038861 A1 3/2012

OTHER PUBLICATIONS

- “AeroChamber Plus Flow-Vu Anti-Static Valved Holding Chamber, Small Mask, Medium Mask” Forest Pharmaceuticals, Inc., RMC 16417 Revision: Jan. 2010 (1 page).
 “AeroChamber Plus Valved Holding Chamber” Forest Pharmaceuticals, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.aerochambervhc.com> (3 pages).
 “E-Z Spacer® Collapsible holding chamber for metered-dose inhalers” FSC Laboratories, Inc., FSC 393-11, Rev A, Nov. 2008 (1 page).
 “Optichamber® Advantage Valved Holding Chamber” Philips Respironics, Retrieved Date: Oct. 14, 2010, From URL: <http://optichamberholdingchamber.respironics.com/default.asp> (5 pages).
 “PARI Granted U.S. Patent for Vortex Holding Chamber” PARI Respiratory Equipment, Inc., News Release, Midlothian, Virginia, Jul. 21, 2009 (1 page).
 “PARI In the Americas—The Lower Airways—Home” PARI Respiratory Equipment, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.pari.com/pdd.htm> (1 page).
 “PARI Vortex® Non Electrostatic Valved Holding Chamber” PARI Respiratory Equipment, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.pari.com/pdd/vortex.htm> (2 pages).
 “Pocket Flow Spacer” Health Enterprise East Ltd., Retrieved Date: Jun. 21, 2010, From URL: <http://www.hee.org.uk/Licensing-Opportunities/pocket-flow-spacer.html> (1 page).
 “Spacers and holding chambers” Koninklijke Philips Electronics N.V., Retrieved Date: May 6, 2010, From URL: http://www.healthcare.philips.com/main/homehealth/respiratory_drug_delivery/spacers_and_holding_chambers/index.wpd (1 page).
 Heidi et al., “Inhaled isotonic alkaline versus saline solution and radioaerosol clearance in chronic cough” *European Respiratory Journal* 2000; 16: 1102-1108.
 Hsu et al. “Breath-by-breath Delivered Dose Comparison from Three Anti-Static Valved Holding Chambers With Facemasks Under Simulated Use Conditions”, Philips Respironics. (Date Unknown).
 Hsu et al. “Evaluation of Delivery Efficiency from Valved Holding Chambers with Facemasks Under Simulated Use Conditions”, Retrieved from the Internet at URL http://www.healthcare.philips.com/pwc_hc/us_en/homehealth/respiratory_drug_delivery/optichamberdiamond/pdf/RDD_2011_Hsu_et_al_LiteTouch_Facemask_seal.pdf (Date Unknown).
 Nikander et al. In Vitro Comparison of Aerosol Characteristics of HFA Ipratropium Bromide Pressurized Metered Dose Inhaler (pMDI) Formulation from Three Valved Holding Chambers (VHCs), Philips Respironics, Presented at the European Respiratory Society Conference, Sep. 24-28, 2011, Amsterdam, The Netherlands (1 page).

(56)

References Cited

OTHER PUBLICATIONS

- OptiChamber Advantage Valved Holding Chamber Koninklijke Philips Electronics N.V., Retrieved Date: May 6, 2010, From URL: http://www.healthcare.philips.com/main/homehealth/respiratory_drug_delivery/optichamberholdingchamber/default.wpd (1 page).
- Philips Respironics, "OptiChamber Diamond anti-static valved holding chamber", 2011 Koninklijke Philips Electronics N.V., Retrieved from the Internet at URL http://www.healthcare.philips.com/pwc_hc/main/homehealth/respiratory_drug_delivery/litotouch/pdf/PR_OCD_AerosolCharacterization_Charts_HI.pdf (3 pages).
- Philips Respironics, "Philips Respironics OptiChamber Diamond anti-static valved holding chamber", 2011 Koninklijke Philips Electronics N.V., Retrieved from the Internet at URL http://www.healthcare.philips.com/pwc_hc/main/homehealth/respiratory_drug_delivery/optichamberdiamond/pdf/Intl-PN1091731.pdf (2 pages).
- von Hollen et al. "Determining the Influence of Washing on the Aerosol Performance of an Anti-Static Valved Holding Chamber" Philips Respironics, Presented at the Association of Asthma Educators Annual Conference, Jul. 22-24, 2011, Denver, Colorado, USA (1 page).
- von Hollen et al. "Effect of Simulated Facial Movement on the Seal Integrity of a Valved Holding Chamber Mask", Philips Respironics, Presented at the American Thoracic Society International Conference, May 14-19, 2010, New Orleans, LA, USA, (1 page).
- von Hollen et al. "In Vitro Comparison of Aerosol Characteristics of Two Pressurized Metered Dose Inhaler Formulations Commonly Used in COPD", Philips Respironics, Presented at the American Association of Pharmaceutical Scientists Conference, Oct. 23-27, 2011, Washington, DC, USA, (1 page).
- von Hollen et al. "In Vitro Comparison of Aerosol Characteristics of HFA Albuterol Pressurized Metered Dose Inhaler Formulation from Anti-Static Valved Holding Chambers", Philips Respironics, Presented at the American Thoracic Society International Conference, May 13-18, 2011, Denver, CO, USA, (1 page).
- von Hollen et al. In Vitro Comparison of Aerosol Characteristics of HFA Albuterol (Salbutamol) Pressurized Metered Dose Inhaler (pMDI) Formulation from Three Valved Holding Chambers (VHCs), Philips Respironics, Presented at the European Respiratory Society Conference, Sep. 24-28, 2011, Amsterdam, The Netherlands, (1 page).
- von Hollen et al. "Quantifying Facemask Sealing Efficiency when used on a Valved Holding Chamber During Simulated Breathing", Philips Respironics, Presented at the Association of Asthma Educators annual conference, Jul. 31- Aug. 2, 2009, New Orleans, LA, (1 page).
- von Hollen et al., "Comparison of Aerosol Characteristics from Two HFA Pressurized Metered Dose Inhaler Formulations using Anti-Static Valved Holding Chambers", Philips Respironics, Presented at Respiratory Drug Delivery Europe, Berlin, Germany, May 3-6, 2011, (1 page).
- von Hollen et al., "Evaluation of the Aerosol Characteristics of an HFA Fluticasone Propionate Pressurized Metered Dose Inhaler Formulation with Conventional and Anti-Static plastic Valved Holding Chambers", Philips Respironics, Presented at the 18th Congress of International Society for Aerosols in Medicine, Jun. 18-22, 2011, Rotterdam, The Netherlands, (1 page).
- von Hollen et al., "Impact of Flow Rate Change on the Aerosol Characteristics of HFA Albuterol (Salbutamol) Pressurized Metered Dose Inhaler Formulation with an Anti-Static Valved Holding Chamber", Philips Respironics, Presented at the 18th Congress of International Society for Aerosols in Medicine, Jun. 18-22, 2011, Rotterdam, The Netherlands, (1 page).
- Invitation To Pay Additional Fees Corresponding to International Application No. PCT/US2013/036936; Date of Mailing: Jun. 27, 2013; 8 Pages.

* cited by examiner

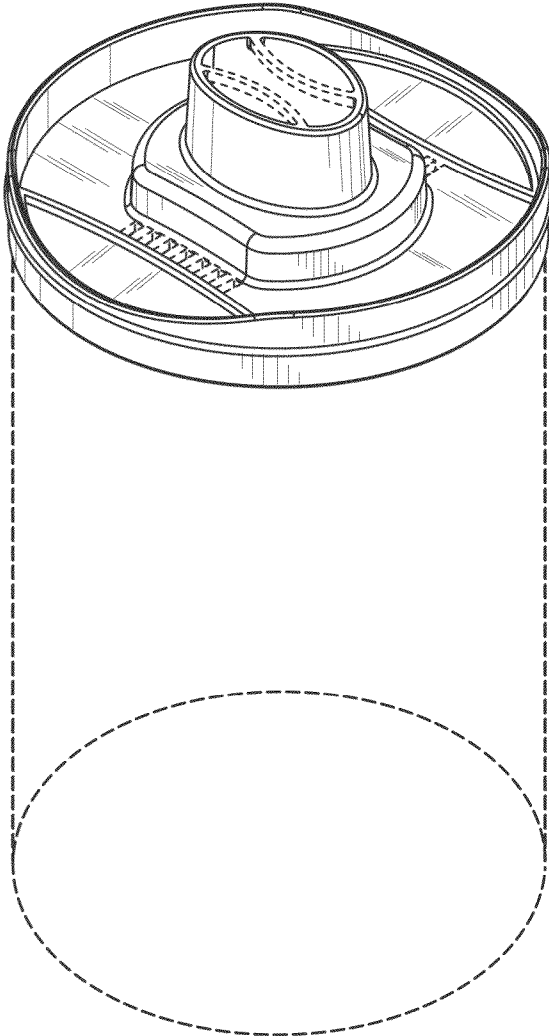


Fig. 1

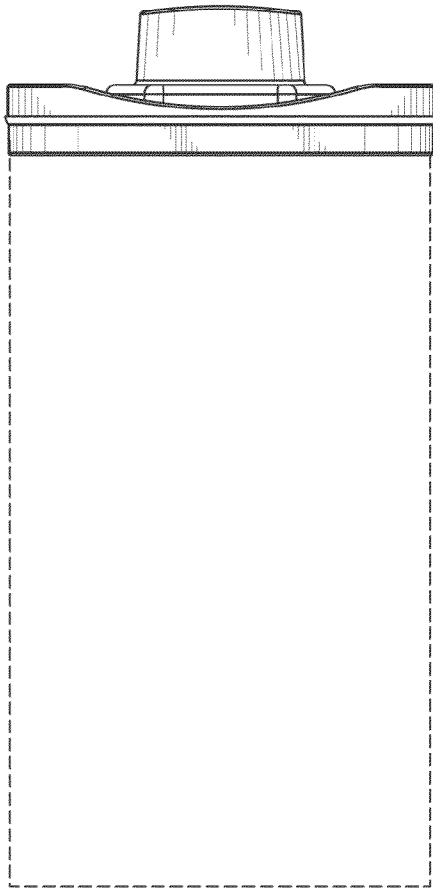


Fig. 2



Fig. 3

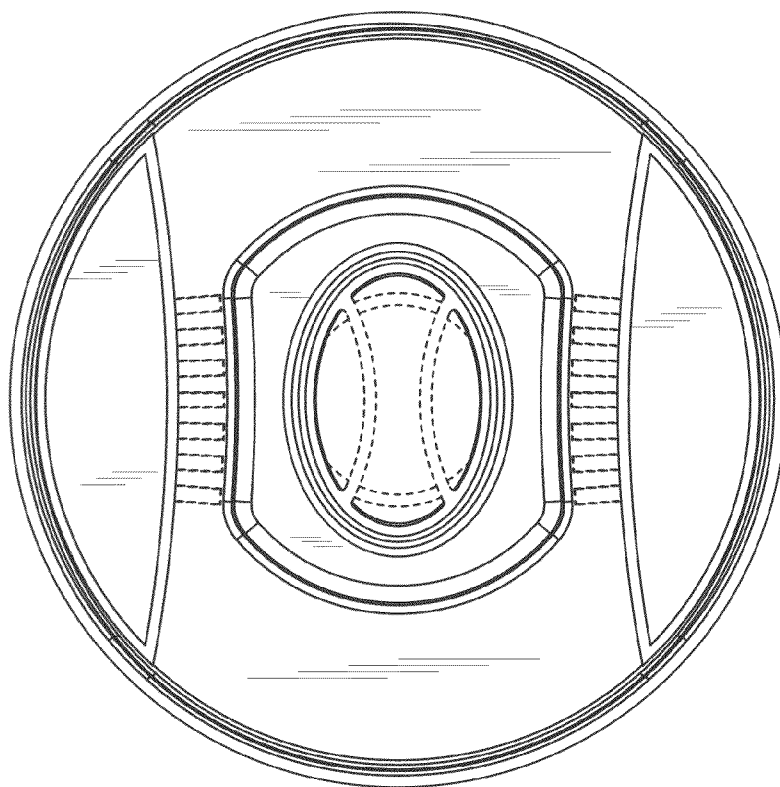


Fig. 4

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : D757,246 S
APPLICATION NO. : 29/529727
DATED : May 24, 2016
INVENTOR(S) : Steelman et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On Title Page:

Item (57) **CLAIM**: Please correct “spacer, as” to read -- spacer as --

In the **DESCRIPTION**, FIG. 3, Line 2: Please correct “and,” to read -- and --

Page 2, OTHER PUBLICATIONS: Line 28: Please correct “Heidi et al.,” to read -- Haidl et al., --

Signed and Sealed this
Eighth Day of November, 2016



Michelle K. Lee
Director of the United States Patent and Trademark Office